OCN 6.4 R/V Oceanus Small Boat Operations

Originator:	Approved By:
Lawrence T. Bearse	J.L. Coburn, Jr.

1. Purpose

The purpose of this procedure is to set forth guidelines for small boat operations and the qualifications for small boat operators.

2. Responsibility

Small boat operations are conducted at the direction of the Master. The Chief Mate shall oversee the training of operators while qualified operators give the practical instruction.

The Bosun is in charge of the deck during launch and recovery of small boats. While a boat is underway, the boat operator is in command and responsible for the embarked personnel and safe operation of the boat.

3. General

The ship normally carries an Avon R.H.I.B. with outboard motor as a ship's boat. For special operations such as diving, an Achillies inflatable with outboard motor is available with an advance request. The Achillies is normally warehoused at the WHOI storage facility. The ship provides a boat operator as well as all required safety equipment for small boat operations. The ship's boats are intended to be used in support of the scientific effort and are not intended for recreation or shore launch services, although at the discretion of the Master, they may be used for other purposes as deemed appropriate.

The Bosun shall be responsible for checking the small boat on a daily basis while at sea to ensure that the Avon is always pressed up and ready for deployment.

4. Procedures

Although not required of ship's boats, every effort will be made to maintain the R.H.I.B. as a registered motorboat. A copy of the registration will be kept in the "Boat Box".

The Master/Bosun/Chief Mate will ensure that the operator has received adequate training and is certified as a boat operator. In some cases, personnel under training will be allowed to operate under supervision of a trained operator. Special care must be exercised to keep weights to a minimum during all hoisting operations so as not to over tax the lifting bridle or boatlift points.

The operator shall ensure:

A. That the boat is in proper condition, adequately inflated and seaworthy.

B. The boat contains the required equipment as required by the USCG for the size motor boat being operated and that the required equipment is in good condition and up to date as required and ready for immediate use. A watertight boat box is provided for those items that must be kept dry.
C. That a VHF radio is on board, fully charged and tuned to the agreed upon frequency (normally 19A), is turned on and ready for use. In the case of a hand held radio, it shall be placed in a sealed plastic bag to protect it from moisture. A spare battery pack will also be kept in the bag.
D. That the boat is operated in a safe manner observing all applicable rules of the road where required.
E. That the number of persons and gear does not exceed the manufacturer's weight limits and that the weight is evenly distributed for proper operation under the prevailing conditions.
F. That a radio check is conducted prior to getting underway from the ship.

The boat operator will follow all special instructions given by the ships watch officer.

The Chief Engineer, or his designee, shall be responsible for engine maintenance both periodic and planned whether done on board or contracted to an outside source as well as providing adequate quatities of stabilized gasoline and 2 cycle oil mix. Requests for work orders, spares and quantities and all maintenance records shall be processed through SafeNet.

The Bosun will be responsible for the general overall boat maintenance (except engine work) and readiness condition. The Bosun will collaborate with the Chief Mate and Chief Engineer as needed to address maintenance and repair issues to be implemented through SafeNet.

5. Launch / recovery

In general, the small boat will be launched and recovered from the ship's starboard side. A four-part spliced sling coupled to a single pear or sling ring is lead to a single lift pennant attached to the crane headache ball and hook is the preferred method for lifting. The four lift points are attached to the boat's lift rings. Tag lines are fair lead for and aft with positive control using cleats or other securing points. The crane operator and line handlers follow the directions of the Bosun for launch and recovery.

The usual procedure is as follows but may be modified to suit the situation at hand:

A. The boat is raised from the deck, lifted over the bulwark rail and then swung inboard against the bulwark and made fast.
B. Gear may be loaded and the operator climbs aboard with required safety gear and takes position on the outboard side facing the ship.

C. On signal, the boat is swung out and lowered away. Once positively afloat, the operator releases the crane hook. As the hook is being raised, the line handlers provide long leads fore and aft to keep the boat safely along side.
D. The boarding ladder is deployed over the side. Designated persons board the boat and additional gear is passed down if needed.
E. Once all hands are seated and the motor is running the bridge will give permission for the boat to get underway.
F. Upon recovery, the process is essentially reversed, the boat is returned to the deck and secured as before.

Note: Once the boat has been launched, the operator is in charge and responsible for all persons aboard. All lines are to be safely secured inside the boat.

The checklist appended to this procedure will be used in small boat operations aboard Oceanus.

6. Training

To become recognized as a qualified small boat operator, the individual shall:
A. Understand the use and care of the equipment and the operations from prelaunch to recovery and securing.
B. Receive practical training that includes observation of all aspects of the operation with qualified operators, then operating with a qualified operator supervising until the trainee is ready to solo. Readiness to solo is determined by the Chief Mate.
C. Practical test = solo performance
D. Written test

NOTE: The Master and the Chief Mate reserves the right to revoke any operator's certification if, in the opinion of either, an operator is in violation of safety standards or operating the boat in a manner which endangers personnel.

7. Reporting

Upon completion of the above requirements to the satisfaction of the Chief Mate, "Avon Operator" Qualification will be added to the Training Section of the crewmember's personnel record in SafeNet.

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Small Boat Operations Checklist

All Boat Operators will complete the following checklist and present it to the ship's watch officer prior to commencing launch ops.

Name of Operator: _____ Certified: yes ☐ no ☐

Reason for boat Op: ☐ Training ☐ Testing ☐ Trials ☐ Dive Ops
☐ Sci Ops ☐ Port Ops ☐SAR ☐ Other (Describe)

_____

_____

To be checked off by Boat Operator

Proper inflation?	Yes ☐	No ☐
Required safety gear aboard?	Yes ☐	No ☐
Adequate PFDs for all aboard?	Yes ☐	No ☐
Conduct radio check?	Yes ☐	No ☐
Paddles aboard? ?	Yes ☐	No ☐
Anchor aboard (if needed?	Yes ☐	No ☐
Yellow WT box w/spares etc. on board?	Yes ☐	No ☐
If at night, proper nav lights working?	Yes ☐	No ☐

To be checked off by Duty Engineer

Is the engine in proper running condition?	Yes ☐	No ☐
Has the fuel been properly mixed?	Yes ☐	No ☐
In your assessment is the boat ready to go?	Yes ☐	No ☐

If you answered no to any of the above please explain briefly:

_____

_____

Comments:_____

_____

Signature Operator: _____

Signature Duty Engineer: _____

Approved ships watch officer: _____

SECTION 3

Tom Smith

Small Boat Safety

I. General

Small boat safety covers a wide variety of boats. A small boat can range in size from a vessel of just less than 100 gross tons to a small open boat propelled by an outboard engine. Because of this variance, the safety regulations that apply to small boats also widely differ. To accurately determine what safety regulations apply to a specific boat, the vessel's size and/or its employment needs to be established. If the vessel is documented, its documentation papers will cite the employment (fishing, small passenger vessel, tanker, etc.) in which it is authorized to work. If it is not documented, then the regulations governing uninspected vessels will most likely apply.

II. Types of Small Boats

Motor Vessel. A vessel more than 65 feet in length that is equipped with propulsion machinery .

Motorboat. Motorboats are classified as: Class A -less than 16 ft.; Class 1 -16 to 26 ft.; Class 2 -26 to 40 ft.; and Class 3 -40 to 65 ft. Most undocumented boats, defined as small boats by this manual, will be this type of vessel.

Documented Vessel. A vessel greater than 5 net tons which is registered, enrolled or licensed as a vessel of the United States. This is a requirement for a vessel that will engage in trade or commerce. UNOLS research vessels are not engaged in trade or commerce but commercial vessels ordinarily are. Charter vessels, other than motor boats, would normally be a documented vessel.

Undocumented Vessel. Any vessel which is not required to, and does not have a marine document issued by the USCG.

Inspected Vessels. One inspected and certificated by the USCG. Motor vessels, tank vessels, passenger vessels and most vessels over 300 gross tons are required to be inspected.

Uninspected Vessel. A vessel not certified under the inspection laws or subjected to regular inspections by the USCG. Most motor boats, fishing boats and oceanographic research vessels under 300 gross tons will be this type vessel. Uninspected vessels, however, are still subject to the rules for safety cited in section III below that apply and, in some cases, the rules for licensed personnel.

Oceanographic Research Vessel. A vessel which the USCG determines is exclusively employed in instruction in oceanography or in oceanographic research.

Numbered Vessel. A vessel is numbered under the provisions of the Federal Boat Safety Act of 1971. Oceanographic research vessels not engaged in commerce are not required to be documented and may be a numbered vessel (except if owned by a State or the Federal Government). All undocumented motorboats are numbered unless owned by the State or Federal Government.

Public Vessel. A vessel which is owned, or chartered, and operated by the US Government and not engaged in commerce. (e.g. USCG & NOAA vessels)

III. Applicable Regulations

Based on the type of boat, its size and/or its employment, some or all of the below federal regulations will apply.

The Motor Boat Act of 1940. This law covers many aspects of safety for small crafts. This would include powered rafts and inflatables, small skiffs and other uninspected vessels 65 feet or less in length.

The Federal Boat Safety Act of 1971. This act sets forth certain safety and documentation requirements for small crafts. The regulations to carry out the intent of this Act and the Motor Boat Act, cited above, are found in 46CFR24 (Subchapter C -Uninspected Vessels). Most but not all motor boats will be governed by the provisions of this chapter.

Commercial Fishing Vessel Safety Act of 1988. This was enacted to stem the high accident and loss of life experienced aboard fishing vessels, and fishing support vessels. A vessel documented as a fishing vessel will be required to adhere to these regulations. The regulations to carry out this act are found in 46CFR188.

Passenger Carrying Vessel. A vessel whose documentation cites its employment as a passenger vessel will be required to adhere to the regulations contained in 46CFR175-187 (Subchapter T - Small Passenger Vessels Under 100 gross tons).

Research Vessel. A vessel whose documentation cites its employment as a research vessel will be required to adhere 46CFRl88-196 (Subchapter U -Oceanographic Research Vessels).

IV. Safety Requirements

All boats used for research by UNOLS institutions will comply with the US Coast Guard Regulations that are applicable to the vessel's size and employment.

Small boats that will be used by UNOLS institutions will have either a current US Coast Guard safety inspection or be inspected by the institute ' s marine staff to insure that the vessel does meet the required safety regulations. A marine staff s inspection will not be accepted as a substitute for an "inspected vessel's" mandated US Coast Guard inspection.

Small boats that are chartered by UNOLS institutions will also meet the requirements of section 17 of the Research Vessel Safety Standards. Chartered boats will be either documented or numbered except for a chartered vessel that is classed as a public vessel.

All personnel aboard open boats (boats with no cabins) or when working on deck with over the side equipment will wear personnel flotation devices, work vests, exposure suits or float coats. The type of flotation will be dictated by the work environment.

Personnel engaged in launching/retrieving over the side equipment or moving weights on deck by cranes, booms, winches, davits, etc. will wear hard hats.

All science parties using a boat will prepare a float or cruise plan. This plan will be prepared by the person in charge of the science party and disseminated prior to departure. The plan will consist of at least the following;

1. Names of all personnel embarked on the vessel.
2. A brief statement of the work being performed.
3. The location of the research area and a brief description of the tracks the vessel intends to follow to and from the research area.
4. The estimated time of the boat to;
    - depart the dock enroute the research area,
    - reach the research area,
    - depart the research area enroute back to the dock, and return to the dock.
5. The type of communications devices aboard and the frequencies monitored or cell phone number.
6. The float plan will be disseminated to the Institute's marine staff and to a person ashore who will be responsible for monitoring the cruise's progress and alerting the science parties home institution, the US Coast Guard, harbor master or other marine safety organizations if the boat is more than 2 hours overdue from its estimated return to the dock.

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7. The person in charge of the science party will communicate to the above individual any major changes (more than 1 hour) in its estimated return time, major breakdowns in propulsion equipment, emergencies, or change to the planned research work area. They shall also notify this person when they return ashore.

Vessels operating north of 32 Degrees North or South latitude in the Atlantic or between 35 Degrees North or South latitude in other waters will have an immersion suit aboard for each person embarked on the vessel(33CFR192.41).

Unless required to carry immersion suits, all boats will carry a US Coast Guard approved personal flotation device (PFD) for each person aboard. The specific type of PFD will be determined by the regulations applicable to the vessel (See 46CFR28.l05 for specific requirements).

All PFDs, life rings, inflatable rafts, and life floats will be marked with the vessel' s name (46CFR28.135).

Life ring, personal flotation devices, life rafts, and life floats carried aboard a vessel will have retro-reflective tape applied as specified in Navigation and Vessel Inspection Circular 1-87 (Published by US Coast Guard).

A1l vessels operating beyond the coastal waters (3 miles offshore), will carry an EPIRB (46CFR28.150, 46CFR25.26).

All inboard gasoline engines will be equipped with a flame arrestor (46CFR25).

Engines fueled with gasoline require extra precaution. Prior to fueling gasoline-powered boats which have built in fuel tanks, bilges should be first checked for the presence of gasoline fumes and then ventilation blowers run. When fueling portable gasoline tanks, insure the fueling nozzle is in contact with the tank's fill port prior to starting and during the pumping of fuel. This will prevent a static electricity charge from being generated during fueling.

Vessel operators must be qualified as competent to operate the vessel. This is best met by requiring the operator to hold a current US Coast Guard license for a deck officer and for such license to be of sufficient tonnage to meet or exceed the gross tonnage of the vessel being operated. Institutions, however, may certify an operator is qualified to operate a small boat if the institution is satisfied that the operator has demonstrated sufficient experience to safely operate the boat.

The operator of a vessel will not operate a vessel for more than 12 hours in anyone day. To exceed this limit, a second qualified operator is required to be aboard.

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The manning of any vessel w]l be sufficient to insure safe, efficient operations for the size vessel being operated and the type work being performed. The institution should make this determination prior to any voyage. A US Coast Guard inspected vessel (inspected under Subchapter T) must comply with the manning requirements listed on its Certificate of Inspection.

Personnel aboard a vessel should not exceed its passenger carrying capacity. .This can be difficult to determine. Most motorboats will have a plate attached to the hull by the manufacturer that states the maximum number of people that the vessel can safely carry .A passenger carrying vessel, that carries more than six passengers for hire, will be inspected by the US Coast Guard and the number of passengers it can carry will be listed on its Certificate of Inspection. Un-inspected vessels cannot legally carry more than six passengers. Under 46CFR188.05-33 (Subchapter U), members of a science party are considered as "persons" and not counted as crew or passengers. This ruling, however, applies only to a vessel whose employment is as an oceanographic research vessel. If a vessel's documents do not list its employment as an oceanographic vessel then the science party is viewed as passengers. This limits the number of people aboard any uninspected, non- research vessels to six people or less. A problem exists with a vessel that is uninspected, does not have a manufacture's plate that states the maximum number of people it can carry, and its employment is shown as oceanographic vessel. Because the science party is not considered as either crew or passengers, a definite limit for personnel aboard cannot be established. Under such a situation, the limit must be logically established. The capacity of the vessel's life rafts, the number of personal flotation devices, the number of built in berths, and the carrying capacity of similar size vessels should all be considered to determine the vessel's carrying capacity .

All small boats are required to carry the below types of USCG approved distress signals (pyrotechnics). The expiration date stamped on the pyrotechnics will not be exceeded during the voyage. (46CFR28.145)

Area Q.f *Operations*	*Signals Required*
More than 50 miles offshore	Parachute Flares -3 ea. Hand Flares -6 ea. Smoke Signals -3 ea.
Between 3 and 50 miles offshore	Parachute Flares -3 ea. Hand Flares -3 ea. Smoke Signals -3 ea.
Inside of 3 miles from shore	Electric distress light or 3 flares Distress Flag or 3 smoke signals

Vessels will carry at least the below fire extinguishing equipment (46CFR25.30);

Vessel Length	*No. of BI Tvpe Fire Extinguishers*
Uninspected Vessel	
Under 16 feet	One
16 feet but less than 26 feet	One
26 feet but less then 40 feet	Two but only 1 if fixed system in engine room.
40 feet to 65 feet	Three but only 2 if fixed system in engine room.
Over 65 feet	See Subchapter T and 46CFR25.30.
Inspected Vessel	Listed on Certificate of Inspection

All vessels 26 feet or more in length are required to post an oil pollution and garbage placard. A vessel 40 or more feet that is deployed on an ocean voyage (12 miles offshore) must have a written solid waste disposal plan (33CFR151.155).

All installed marine toilet facilities must be a US Coast Guard approved Marine Sanitation Device (MSD) (33CFR159).

If a vessel has Coast Guard licensed personnel aboard, the Master must notify the US Coast Guard if any casualty listed in 46CFR4.05 occurs. This includes groundings which cause a hazard to navigation, the environment or vessel safety, loss of maneuvering capability, injury rendering a person unfit for duty, or an occurrence resulting in property damage in excess of $25,000. If a vessel is involved in a serious marine incident, it must be reported to the US Coast Guard whether licensed personnel are aboard or not. A serious marine incident consists of death, injury requiring professional medical treatment, property damage in excess of $100,000, an oil discharge into the water of 10,000 gallons or more, or the discharge of a
hazardous substance into the water. All personnel involved in a serious marine incident are subject to drug testing.

The regulations that require a vessel to carry a survival raft (life raft or boat) varies widely with the area of operation, type of employment, type of environment, and the number of people aboard. See 46CFR28.120 for the correct requirements.

At least one throwable flotation device is required aboard all vessels 16 feet and longer. See 46CFR28.115 for the correct requirements for a specific vessel.

Vessels operating outside the boundary line, as defined in 46CFR Part 7, that is to seaward of the coastline or entrances to small bays, inlets or rivers, must meet the following additional requirements;

A documented fishing boat or one with 16 or more people aboard, that has ammonia refrigerant, must carry a fireman's outfit and two self contained breathing apparatuses (46CFR28.200).

All vessels will carry charts, a first aid kit, navigational publications and charts for their operating area, an anchor, a radar reflector, a compass, a general alarm system, a high water alarm, and a bilge pumping system (46CFR28.210-255).

Vessels over 79 feet or having their keel laid after September 15, 1991 or undergoing major structural changes since September 15, 1991, should possess either a load line certificate or a current US Coast Guard Stability letter.

All boats will be equipped with a communications device that is of sufficient power to permit it to communicate ashore from the maximum distance offshore where the boat will operate. This can be satisfied by cell phone, portable VHF, SSB radio, etc. as long as the device's range will communicate from the maximum offshore distance that the vessel will reach. Vessels operating outside the boundary line will also comply with the communications regulations governing its type of vessel (46CFR28.245, 28.375; 33CFR26.03; 47CFR80).

All vessels 79 feet or longer must be equipped with an electronic positioning device (i.e. SATNAV, GPS, LORAN, OMEGA or RDF) (48CFR28.260). All vessels operating outside the boundary line will be so equipped.

A vessel less than 12 meters in length must carry an efficient sound signal. If more than 12 meters in length, a bell and whistle are required. All vessel will also have aboard the proper navigational lights and shapes required for the type of boat (33CFR81).

APPENDIX A

Inspection Check List for

Chartering Non-UNOLS Vessels

Check each category listed below as appropriate for the charter mission and operating area. Ensure necessary equipment is aboard and operates properly.

Bridge and Navigation Equipment:

_____Compass

_____LORAN/GPS/TRANSIT/OMEGA

_____Depth Sounder

_____Radar

_____Navigation Lights

_____Ships Bell

_____Whistle or Sound Device

_____Emergency Alarm

_____Pyrotechnics Expiration Date Not Exceeded?_____

_____Navigational Charts and Publications

Communications Equipment:

_____Radios, VHF and/or SSB

_____INMARSAT or Teletype

_____Cellular Phone

_____Emergency Radio with backup battery or power

_____EPIRBs

Documentation:

_____Ensure vessel can be legally chartered based on certificate of inspection, letter of designation or limitation of charter to less than 6 persons.

_____Ensure documentation, ownership, inspection certificate, load line certificate and stability letter are current and appropriate for planned mission.

_____Ensure Master's license is current and appropriate for vessel being chartered.

_____Ensure crew size and credentials are appropriate for charter's mission.

_____Ensure insurance coverage meets chartering Institutes minimum requirements for charter duration.

Life Saving Equipment:

_____PFDs

_____Immersion Suits

_____Inflatable Life Rafts

_____Lifering Buoys

_____Rescue Boats

Inspection Check List for

Chartering Non-UNOLS Vessels

Exterior Decks and Equipment:

____ Anchors and Associated Equipment

____ Watertight Doors and Hatches

_____Freeing Ports

_____Deck Vents

_____Cargo and Weight Handling Equipment (Safe Work Load posted & tested).

_____Deck Surfaces Non-Skid

_____Life Lines and Safety Chains

Fire Fighting Equipment:

_____Fixed and Portable Fire Extinguishers Inspection Dates Current?_____

_____Smoke and Fire Detectors

_____Fire Stations and Hoses

_____Self Contained Breathing Apparatus

_____Fire and Damage Control Locker

_____Emergency Stations Bill

Engineering:

_____Gas Engines. Check flame arrestor, vents, gas hoses, no sparking devices in bilges.

_____Diesel Engines. Check oil and exhaust leaks, starting system, maintenance, hours since last overhaul.

_____Inspect overall cleanliness and condition of power sources.

_____Check emergency lights.

_____Check bilge and ballast systems and pumps.

_____Check fueling system and pumps.

_____Check refrigeration systems.

_____Check fire pump.

_____Check engine room fire suppression capability.

_____Check all manifolds for saltwater, fuel, etc.

_____Check condition of switchboards, wiring and auxiliary generators.

Miscellaneous:

_____First Aid Kits and Medical Supplies

_____Damage Control Equipment

_____Emergency Steering

_____General Appearance and Cleanliness

_____Oil Pollution Placard and other required notices are posted.

_____Sanitary System Operations

_____Assess vessel’s overall stability

_____Assess vessel’s overall ability to perform charter mission. Include laboratory and deck space, berthing and feeding capability, scientific equipment and winches, etc.